

String Trimmer

MODEL RBC230
MODEL RBC260
MODEL RBC261
MODEL RBC310
MODEL RBC311

INSTRUCTION MANUAL



SPECIFICATIONS

Model	RBC230	RBC260 / RBC261	RBC310 / RBC311
Dimensions (mm) (L x W x H)	1,700 x 225 x 245 (67" x 8-7/8" x 9-5/8")	1,700 x 540 x 350 (67" x 21-1/4" x 13-3/4")	1,750 x 500 x 350 (68-7/8" x 19-11/16" x 13-3/4")
Weight (kg)	3.9 (8.6 lbs)	4.6 (10.1 lbs)	5.6 (12.3 lbs)
Revolution of nylon cutting head (rpm)	4,000 ~ 6,000		
Gear ratio	14/18		14/20
Clutch	Automatic centrifugal type		
Engine	Displacement (cc)	22.2	30.5
	Power rating (ps)	1.1	1.5
	Carburetor	All position diaphragm type	
	Starting system	Recoil starter	
	Ignition system	Solid state ignition	
Fuel tank (l)	0.6	0.7	0.8
Fuel	Mixed gas (Gasoline: 2 Cycle E/G oil = 20 ~ 25 : 1)		

NOTICE: Specification are subject to change without notice.

Thank you very much for your patronage in purchasing MAKITA STRING TRIMMER. We are proud of and much confident in recommending our MAKITA STRING TRIMMER as the result of our long development and ample knowledge and experience.

This booklet refers to the essence which you should learn in order to demonstrate its outstanding performance.

We wish that you will have sufficient knowledge from this booklet before operating MAKITA STRING TRIMMER and make the best use of it for ever.

SAFETY RULES AND PRECAUTIONS

Proper safety precautions must be observed. Like all power equipment this unit must be handled carefully. **DO NOT EXPOSE YOURSELF OR OTHERS TO DANGER.** Follow these sample rules.

1. Always wear safety goggles for eye protection. Dress properly, do not wear loose clothing or jewelry that could become caught in moving parts of the unit. Safe, sturdy, nonskid footwear should always be worn. Long hair should be tied back.
2. Inspect the entire machine for loose parts (nuts, bolts, screws, etc.) and any damage. Repair or replace as necessary.
3. **DO NOT USE** any attachment with this power head other than those manufactured by the manufacturer of the engine. Serious injury to the user or damage to the engine could result.
4. Keep the handles free of oil and fuel.
5. Always use the proper handle and hanging band when cutting.
6. Do not smoke while mixing fuel or filling tank.
7. Do not mix fuel in an enclosed room or near open flames. Assure adequate ventilation.
8. Always mix and store the fuel in a properly marked container that is approved for such usage.
9. Never remove the fuel tank cap while the engine is running.
10. Never start or run the engine inside a closed room or building. Fumes from the exhaust contain dangerous carbon monoxide.
11. Never attempt to make engine adjustments while the unit is running and strapped to the operator. Always make engine adjustments with the unit resting on a flat, clear surface.
12. Do not use the unit if it is damaged or poorly adjusted.
13. Inspect the area to be cut and remove all debris that could become entangled in the nylon cutting head. Also remove any objects that the unit may sling during cutting.
14. Keep children away. Onlookers should be kept at a safe distance from the work area, at least 30 feet.
15. Do not use this unit for any job other than those for which it is intended as described in this manual.
16. Do not overreach. Keep proper footing and balance at all times. Do not run unit while standing on a ladder or any other unstable footing location.
17. Keep hands and feet clear of the nylon cutting head while unit is in use.
18. Do not run the unit at high speed when not cutting. During operation, be sure to keep the engine rotation at 6,000 — 8,000 rpm (rated rotation: 7,000 rpm). If the rotation goes below this limit, grass may sometimes become caught in the nylon cutting head, which results in wear of the clutch.
19. Do not use the unit when you are tired or under the influence of medications, drugs or alcohol.
20. Use only nylon cutting heads without any damage. In particular, whenever it hits at a stone or any other obstacle stop the engine and check the nylon cutting head. A broken, or unbalanced nylon cutting head must never be used. Follow instructions for changing accessories.
21. Do not store in a closed area where fuel vapors can reach an open flame from hot water heaters, furnaces, etc. Store in a locked, well ventilated area only.
22. Use only replacement parts that are identical to original equipment parts when servicing the unit. These parts are available from your dealer. The use of any other accessory or attachment may create a potential hazard, injury to the user and damage to the tool.
23. Clean the machine completely, especially, the fuel tank cap, its surroundings, and the air cleaner.

24. Children and Minors should not operate string trimmers with metallic cutting tools, except minors who are properly training and remain under the supervision of a qualified operator.
25. When refueling, be sure to stop the engine and confirm that it is cooled down. Never refuel when the engine is running or warmed up. When gasoline spills, be sure to wipe it up completely and properly dispose of those materials before starting the engine.
26. Stay clear of other workers.
27. Whenever approaching an operator of the machine, carefully call his attention and confirm that the operator stops the engine.
28. Never touch the nylon cutting head whenever the engine is running. If it is necessary to adjust the protector or nylon cutting head, be sure to stop the engine and confirm that the nylon cutting head stops running.
29. The engine should be turned off when the string trimmer is moved between working areas.
30. Be careful not to hit the nylon cutting head against stones, or the ground. Unreasonable operation will shorten the life of the machine as well as create an unsafe environment for yourself and those around you.
31. Pay attention to loosening and overheating of parts. If there is any abnormality on the machine, stop operation immediately and check the machine carefully. If necessary, have the machine serviced by a qualified service facility. Never continue to operate a machine which may be malfunctioning.
32. In startup or during operation of the engine, never touch high-temperature parts such as the muffler, the high-voltage wire or the spark plug.
33. For a while after the engine is stopped, the muffler is still hot. Never place the machine at any place where there are flammable materials (dry grass, etc.) or combustible gasses.
34. Pay special attention to operation in the rain or just after the rain as the ground becomes slippery.
35. If you slip or fall to the ground or into a hole, return the throttle lever immediately.
36. Be careful not to drop the machine or hit it against obstacles.
37. Before proceeding to adjust or repair the machine, be sure to stop the engine and detach the spark plug cap from the spark plug.
38. When the machine is to be kept in storage for a long time, drain fuel from the fuel tank and carburetor, clean the parts, move the machine to a safe place and confirm that the engine is cooled down.
39. Make periodic inspection to always assure safe and efficient operation. If you need a careful inspection of your machine, please contact our agent or dealer.
40. Keep the machine well away from fire or sparks.
41. Warning: The cutter area is still dangerous while the machine is coasting to a stop.
42. Don't try to tackle a big job with an undersized tool.
43. Wear a dust mask in dusty work conditions.
44. Wear hearing protection during loud or extended periods of use.
45. Keep guards and protectors in place and in working order.

CAUTION!

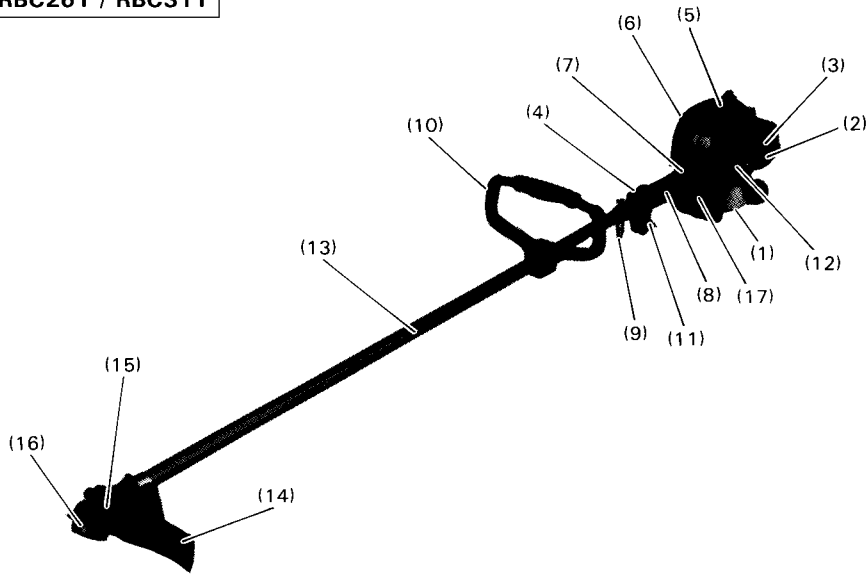
CAUTION!

CAUTION!

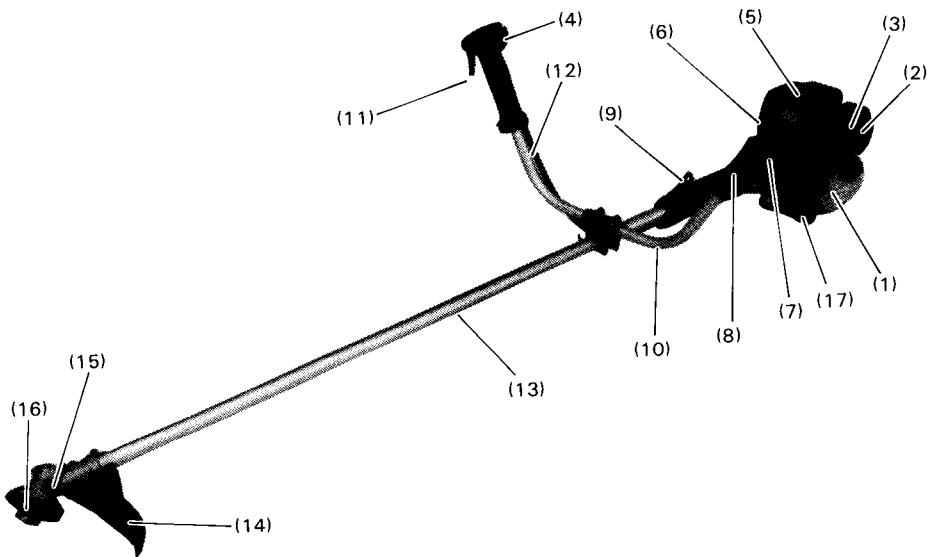
WHEN MIXING GASOLINE WITH TWO CYCLE ENGINE OIL, USE ONLY GASOLINE WHICH CONTAINS NO ETHANOL OR METHANOL (TYPES OF ALCOHOL), THIS WILL HELP TO AVOID POSSIBLE DAMAGE TO ENGINE FUEL LINES AND OTHER ENGINE PARTS.

SAVE THESE INSTRUCTIONS.

RBC230 / RBC261 / RBC311



RBC260 / RBC310



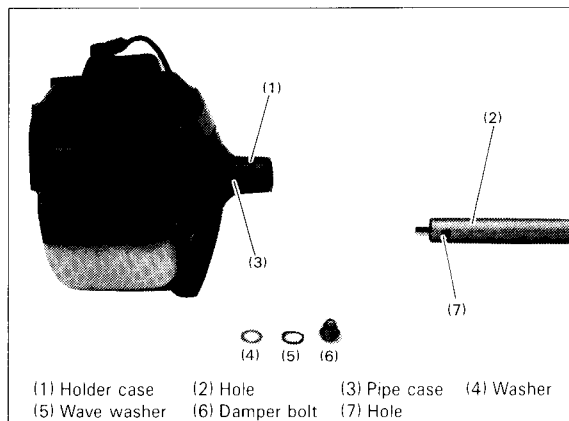
DESIGNATION OF PARTS		DESIGNATION OF PARTS	
1	Fuel Tank	11	Throttle Lever
2	Recoil Starter	12	Throttle Wire
3	Air Cleaner Cover	13	Pipe Case
4	Stop Button	14	Protector
5	Spark Plug	15	Gearcase
6	Muffler	16	Guard
7	Holder Case	17	Stand
8	Rear Grip		
9	Hanger		
10	Front Handle		

ASSEMBLY INSTRUCTIONS

1. Assembly of engine and pipe case

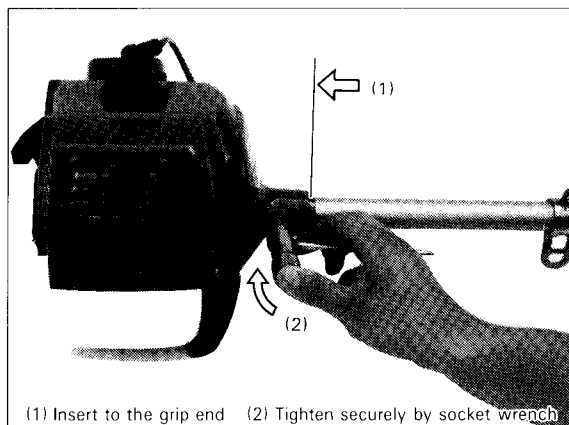
For RBC230 / RBC261 / RBC311

- Remove the protector at the end of the pipe case.
- Insert the pipe case into the holder case being sure to match the splines of the inner shaft to those inside the holder case.
- Match the hole in the pipe case to the hole in the holder case and fasten the pipe case to the engine with damper bolt, wave washer and washer. (Tightening torque: 70 – 100 kg.cm; 5 – 7 ft.lbs)



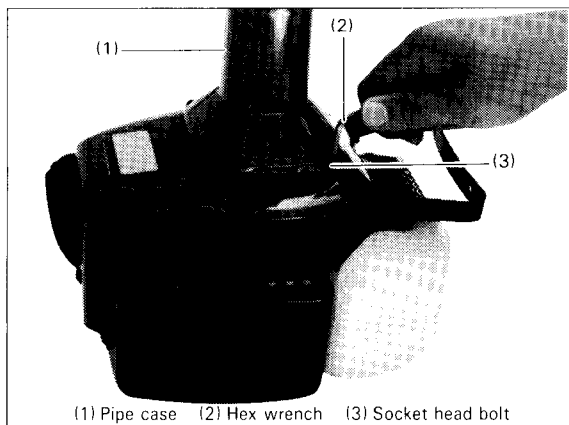
CAUTION:

Securely tighten the damper bolt, which is one of the important parts mating the engine and machine body.



For RBC260 and RBC310

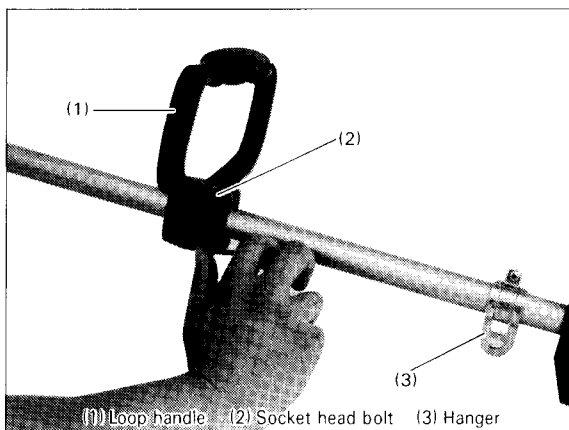
- Install the pipe case (the end with circular metal housing) over the clutch assembly and fix with four socket head bolts and fix tightly with hex wrench.



2. Mounting of handle

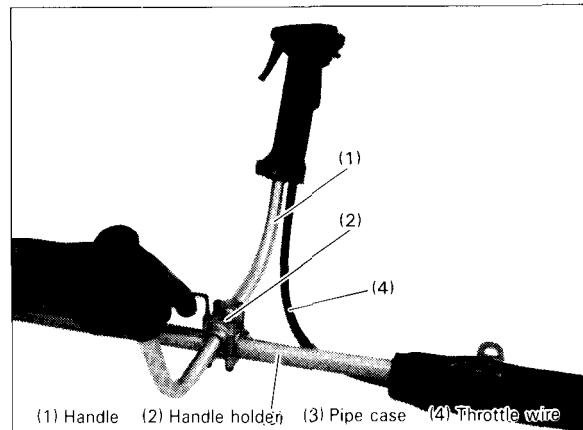
For RBC230 / RBC261 / RBC311

- As shown at right, tighten the loop handle with three socket head bolts.
- Mount the handle so that the throttle wire guide will be oriented to the right, as viewed from the engine side.
- The standard position of the handle is 200 to 250 mm (7-7/8'' – 9-7/8'') from the hanger. Position the handle according to a worker's stature and working conditions.



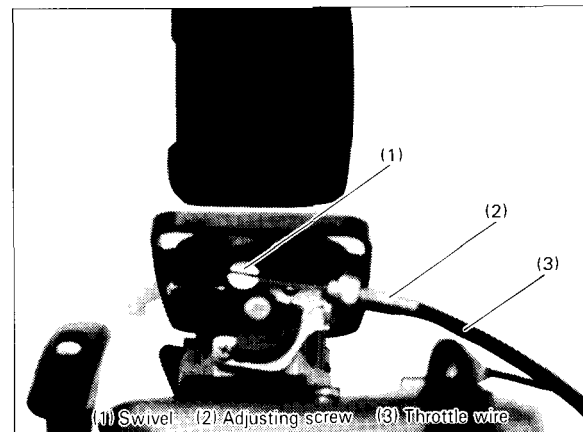
For RBC260 and RBC310

- The handle comes in three parts; two handles and one handle holder assembly. (One half of handle holder is already fitted to pipe case, the other half of handle holder is in plastic bag with four socket head bolts). Place the two handles in the half of handle holder fitted to pipe case (the flared ends fit into grooves in handle holder). Place the loose handle holder over handles and other handle holder on the pipe case and fix together with the four socket head bolts. Ensure the throttle assembly is on correct side and before final tightening, adjust rake of handle to suit.
- Route the throttle wire and ignition wires through locations on handle towards engine.



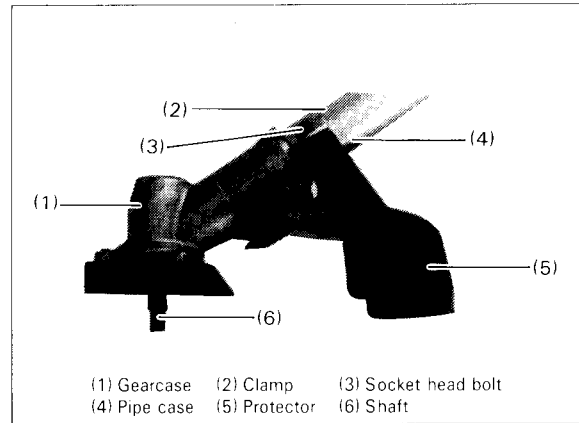
3. Assembly of throttle wire and ignition wire

- Remove plastic cover from carburetor.
- Insert throttle wire through adjusting screw and fit nipple of throttle wire into swivel of carburetor. Adjust the adjusting screw to take up free play of wire ensuring the throttle is fully opened when throttle lever is in high speed position and 2 – 3 mm (0.079" – 0.118") free play when in low speed position. Re-fit plastic cover.
- Connect the female and male bullet connectors from throttle assembly to the male and female bullet connectors coming from engine.

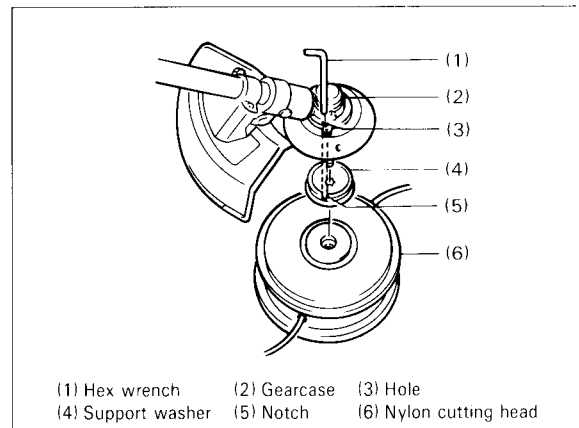


4. Mounting of protector and nylon cutting head

- Fasten the protector to the pipe case with two socket head bolts and clamp. At this time, the clamp should be installed on the pipe case with its projection inserted into the opening between the gearcase and the pipe case.



- To install the nylon cutting head, mount the support washer onto the shaft. Insert the hex wrench through the hole in the gearcase and turn the support washer until it will be locked with its notch (or the shaft will be locked). Then screw the nylon cutting head onto the shaft by turning it counter-clockwise.
- Remove the hex wrench.

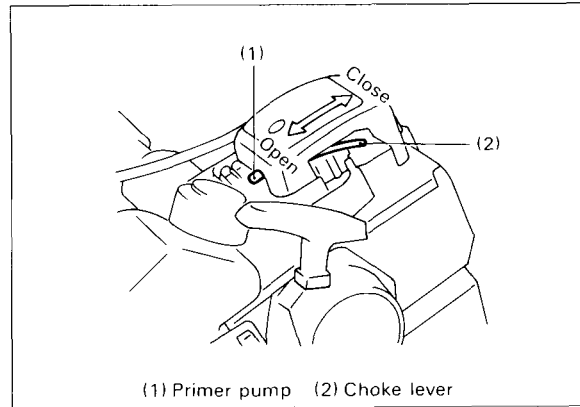


ENGINE STARTING AND STOPPING PROCEDURES

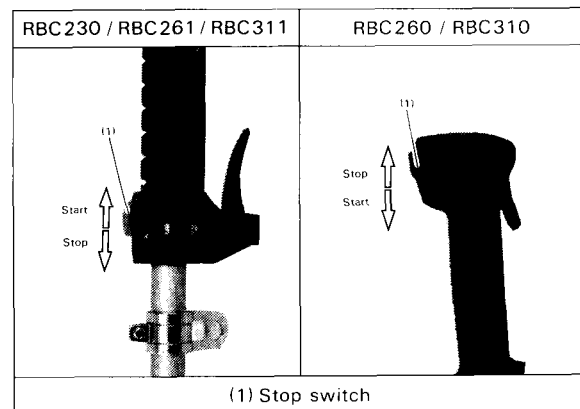
Starting

- When the engine is cold (i.e. left stopped for more than 5 minutes) or when fuel is added to the engine:

- 1) First place the machine on the ground.
- 2) Give a gentle push on the primer pump repeatedly (7 – 10 times) until fuel comes into the primer pump.
- 3) Close the choke lever.



- 4) Push the stop switch to "START" position (or opposite of "STOP" position).

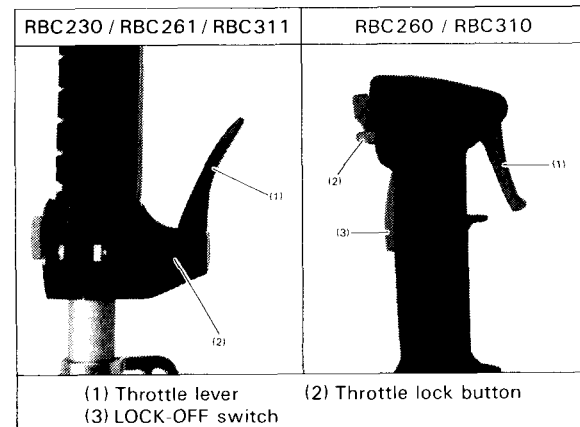


- 5) For RBC230 / RBC261 / RBC311

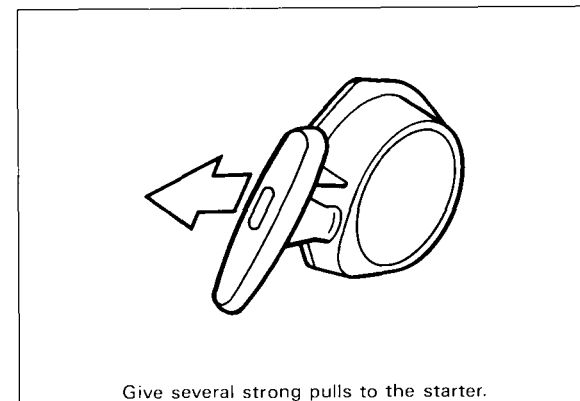
Squeeze the throttle lever fully. Then release the throttle lever while depressing the throttle lock button. The throttle lever will now be locked in the "start-up" position.

For RBC260 and RBC310

Press the "LOCK-OFF" switch before squeezing the throttle lever. Then squeeze the throttle lever fully. Release the throttle lever while depressing the throttle lock button. The throttle lever will now be locked in the "start-up" position.



- 6) Hold the holder case firmly by your left hand and give several strong pulls to the starter by your right hand.
- 7) After the engine is started, open the choke lever fully, checking the engine running condition.



* Immediately after the engine is stopped:
Only perform the Nos. 1, 4 and 6 described above.

Stopping

- Return the throttle lever, and when RPM of engine is lowered, push the stop switch to "STOP" position. Engine will stop.

Cautions in handling of engine

- Be sure to use properly mixed fuel.
- When the engine is cool, warm it up for one to two minutes.
- The carburetor has been adjusted before shipment. If readjustment is required, consult our agent or dealer.

ATTACHMENT AND DETACHMENT OF HANGING BAND

- Hanging band fitting procedure. (Fig. 1)
- Detachment (Fig. 2)

In an emergency, pull the release belt strongly upward and you can detach the machine from you. Be extremely cautious to maintain control of the machine at this time. Do not allow the machine to be deflected toward you or anyone in the work vicinity.

WARNING:

Failure to maintain complete control of the machine at all times could result in serious bodily injury or DEATH.

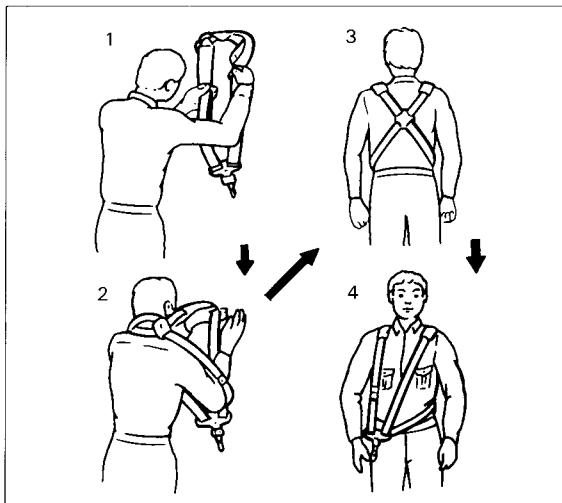


Fig. 1

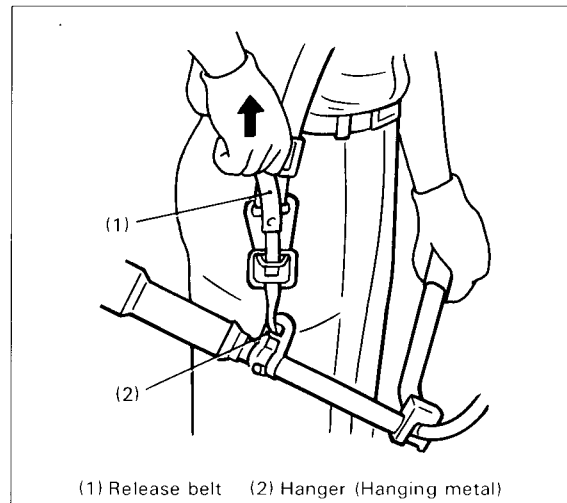
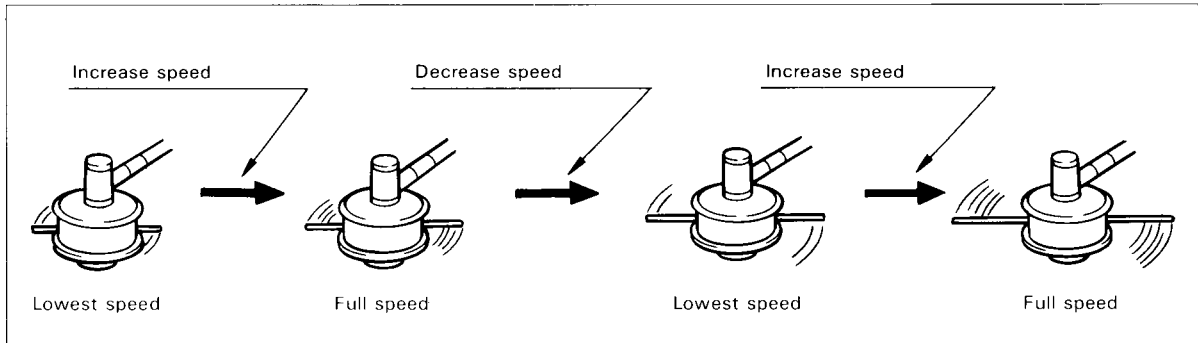


Fig. 2

HOW TO OPERATE

- The nylon cord will feed out automatically to a pre-determined length when you decrease and increase the engine speed of your string trimmer. You do not need to tap the nylon cutting head to let the nylon cord feed out. If the nylon cord does not feed out automatically, decrease the engine speed fully and then increase it fully. The nylon cord will feed out automatically. If the nylon cord still does not feed out sufficiently, perform the same procedures repeatedly until the nylon cord feeds out to the proper length. If the nylon cord is too short to feed out automatically by performing the above procedures, stop the engine and pull out the nylon cord by hand or using pliers more than 40 mm (1-9/16"). Then perform the above procedures again.



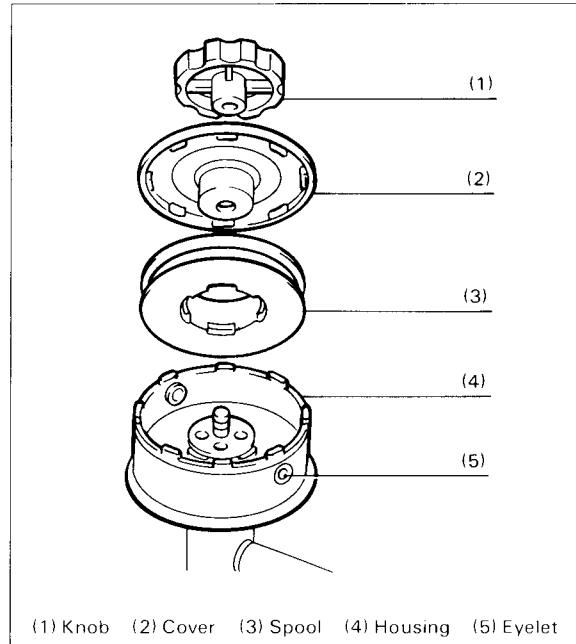
CAUTION:

NEVER OPERATE THE ENGINE AT HIGH RPM WITHOUT LOAD. With throttle fully opened and no load, the engine rpm will be very high which can have an adverse effect on the life of the engine.

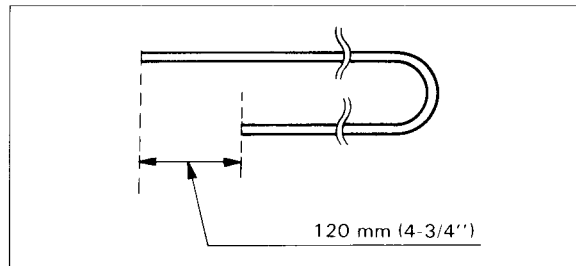
REPLACING THE NYLON CORD

The nylon cord can be easily replaced without removing the nylon cutting head from the String trimmer. Always stop the engine before replacing the nylon cord.

1. Loosen the knob in the direction of the arrow engraved on the knob. Remove the knob and the cover. Take out the spool.
2. Remove the remaining nylon cord from the spool.



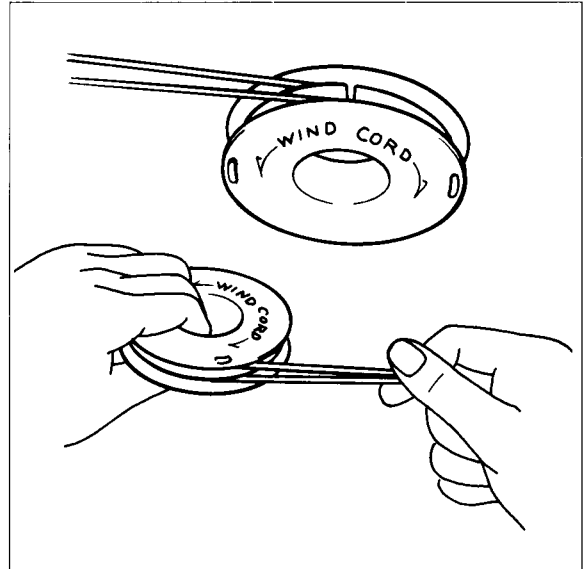
3. Bend a new nylon cord nearly in half so that there is approx. 120 mm (4-3/4'') of difference between the two ends.



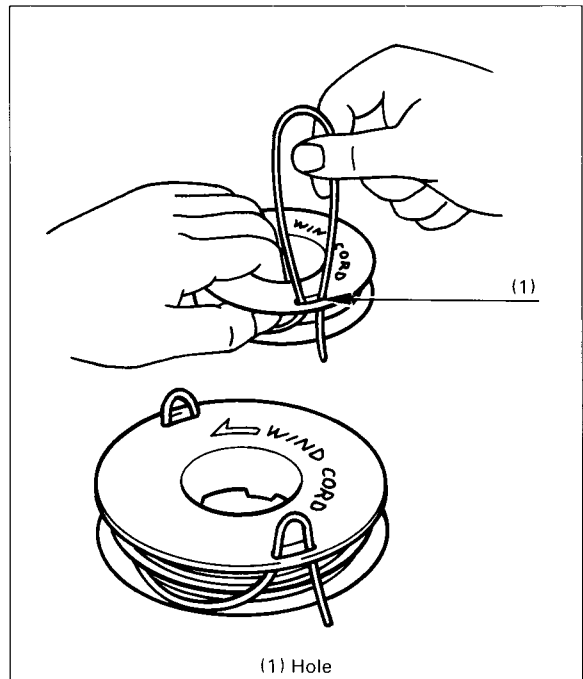
4. Hook the bent portion of the nylon cord into the notch in the center plate of the spool. Wind the nylon cords firmly and snugly on the spool in the direction of the "WIND CORD LH ➡" engraved on the spool.

(Note)

Do not wind the nylon cords in the opposite direction of the "WIND CORD LH ➡" engraved on the spool. Do not overlap or twist the two nylon cords. They will not feed out properly.

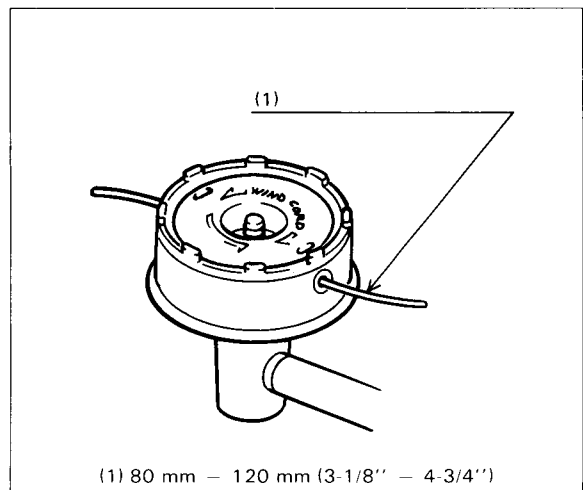


5. Wind both nylon cords firmly and snugly until the spool is full to the outer edge of the center plate. Leave approx 120 mm (4-3/4") of both nylon cords unwound on the spool. Carefully prevent both nylon cords from coming loose on the spool. Pass the end of the shorter nylon cord out through the hole on the side of the rim of the spool and then back into the hole as illustrated. Pass the end of the other, longer nylon cord out through the hole on the opposite side of the spool as illustrated.

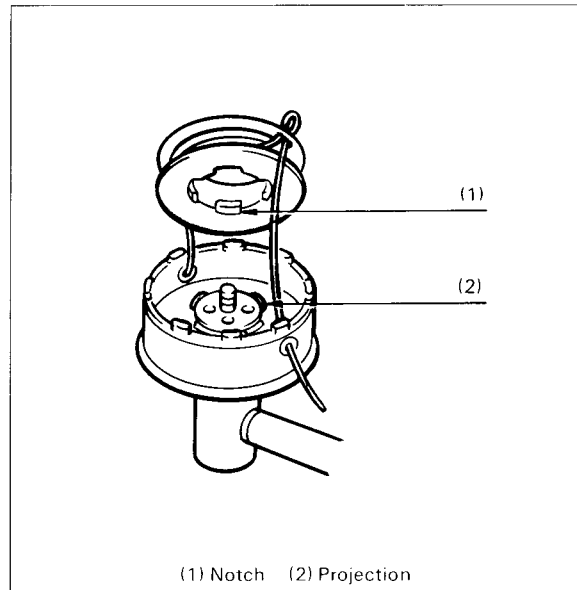


6. Pass the end of each nylon cord out through the eyelets on opposite sides of the housing. Place the spool into the housing. Pull the end of nylon cords while pressing down the spool.

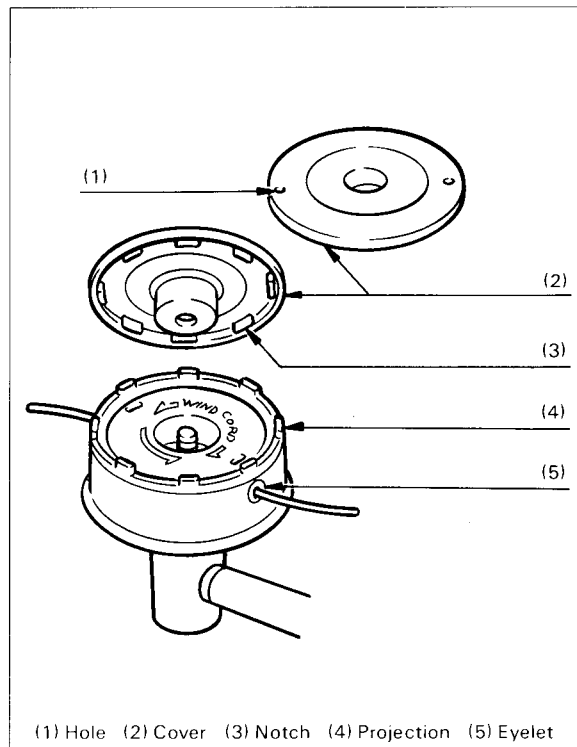
7. Adjust the length of nylon cords so that each nylon cord extends approx. 80 mm — 120 mm (3-1/8" — 4-3/4") out of the housing. If the nylon cord extends out too much or does not extend out enough, adjust the length of nylon cord while raising the spool slightly within the housing.



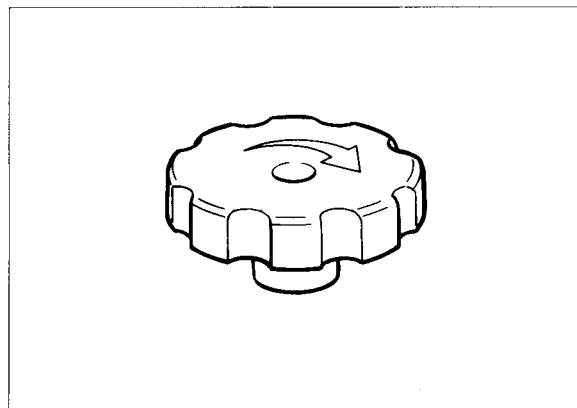
8. Set the spool in the housing so that the projections on the gear plate fit into the notches of the spool.



9. Align the small holes on the cover with the eyelets in the housing and install the cover over the housing so that the projections on the housing fit into the notches on the cover.



10. Re-install the knob and tighten it securely by turning in the opposite direction of the arrow engraved on the knob.



DAILY CHECKUP AND MAINTENANCE

Cleaning of air cleaner

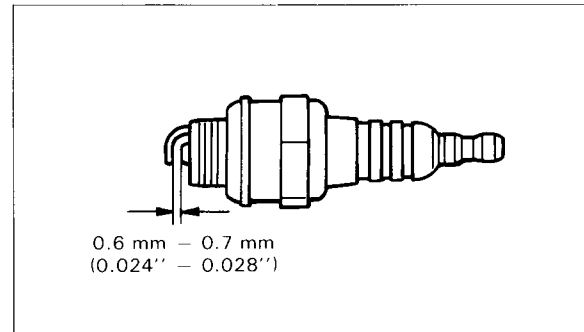
- If the air cleaner is clogged, remove it and clean. If there is excessive dust or dirt adhering to the air cleaner, clean it every day. A clogged air cleaner may make it difficult or impossible to start the engine or increase the engine rotational speed substantially.

Cleaning of cooling air passage

- Prior to operation, be sure to check the cooling air inlet (protection cover), gap between fuel tank and crankcase and clogging of the cylinder fins with dust. Clean them, if necessary.
- Remove the main cover and protection cover and clean the cooling air passage of dust or dirt inside.
- If operating the machine with the cooling air passage clogged with dust or dirt, the engine will not be cooled adequately and engine troubles will result.

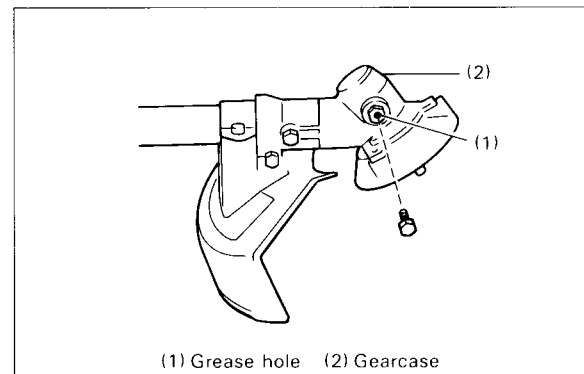
Checkup of spark plug

- The gap between the two electrodes of a spark plug is 0.6 to 0.7 mm (0.024" – 0.028"). If the gap is too wide or too narrow, adjust it. If the spark plug is clogged with carbon or fouled, clean it thoroughly or replace it.



Supply of oil to gearcase

- Remove the hex bolt which plugs the grease hole in the gearcase. Apply grease (Shell albania No. 2 or equivalent) to the gearcase through the grease hole every 30 hours. (Genuine Makita grease may be purchased from your Makita dealer.)



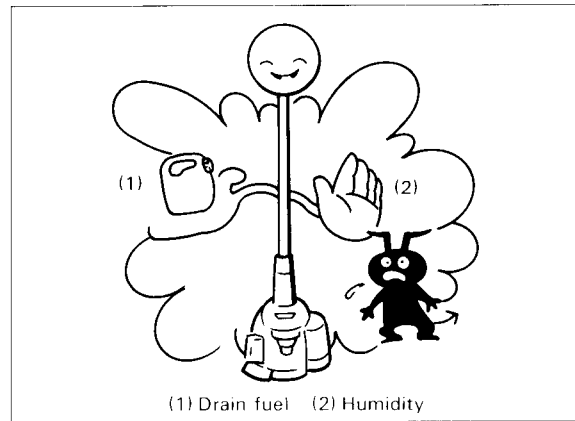
Cleaning of muffler exhaust port

- Check the muffler exhaust port (tail pipe) every 50 hours. If the exhaust port is clogged with carbon, remove it by scraping and tapping gently with a screwdriver or other adequate tools.

STORAGE

Storage

- When storing the machine for a long time, drain fuel from the fuel tank and carburetor, as follows: Drain all fuel from the fuel tank. Dispose of properly and in accordance with all local laws.
- Remove the spark plug and add a few drops of oil into the spark plug hole. Then, pull the starter gently to assure that an oil film covers the engine inside, then tighten the spark plug.
- Clear or blow dirt or dust from the nylon cutting head and outside of engine, wipe them with a oil-immersed cloth and keep the machine at a place as dry as possible. Be sure to wear appropriate eye and face protection.



CHECKUP ITEMS FOR SAFE OPERATION

Prior to operation, be sure to check the following items to assure safe operation of this machine.

	No.	Check point	Description	Checkup
Common	1	Appearance	By visual inspection, check for damage, cracks or wear.	
	2	Bolts, nuts	Check for damage, cracks, wear or loosening.	
Machine body	3	Protector	1) Check for damage, cracks or loosening. 2) Confirm that protector is properly placed in contact with gearcase.	
	4	Gearcase	1) Confirm that there are no loose bolts.	
	5	Handle	Confirm that handle attaching bolts are tightened securely.	
	6	Hanging band	1) Are there any cracks or fraying? 2) Can you easily detach yourself from machine when pulling release belt?	
Engine	7	Throttle lever	1) Does throttle lever work smoothly? 2) Can engine rpm be adjusted between low and high speeds?	
	8	Stop switch	Does engine stop quickly and completely?	
	9	Muffler, muffler cover	1) Clean carbon from muffler. 2) Check muffler cover for damage or loosening.	
	10	Holder case	1) Check damper bolt for secure tightening. 2) Confirm that 3 holder case-tightening screws are not loosened.	

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